



The future of the monetary system

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*The views expressed here are those of the authors and not necessarily of the BIS.

The monetary system is a critical foundation of the economy

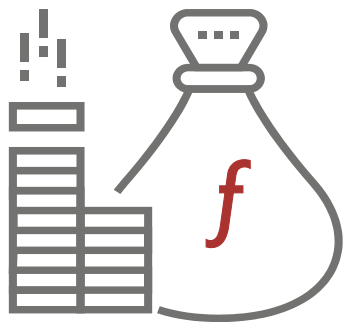


Money

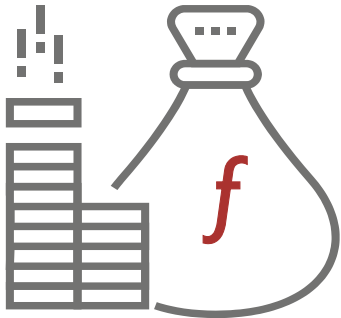
Payments

Source: iStock; author's elaboration.

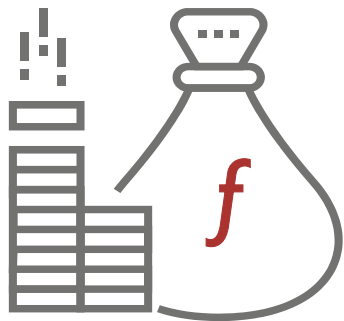
Throughout history, innovations in the monetary system have coincided with major leaps in economic activity



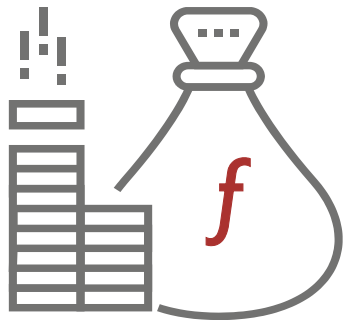
Money in the form of book entries overseen by trusted intermediaries opened the door to new financial instruments that spurred trade and commerce



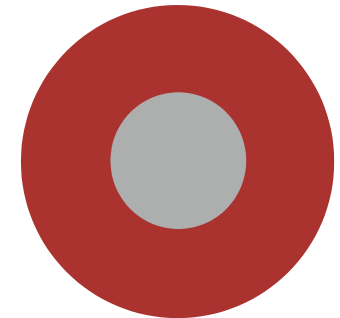
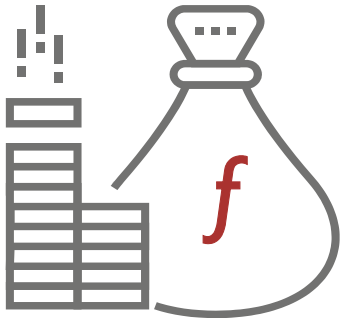
Paper ledgers gave way to their digital counterparts; digitalisation and the dematerialisation of money have wrought profound changes on society at large



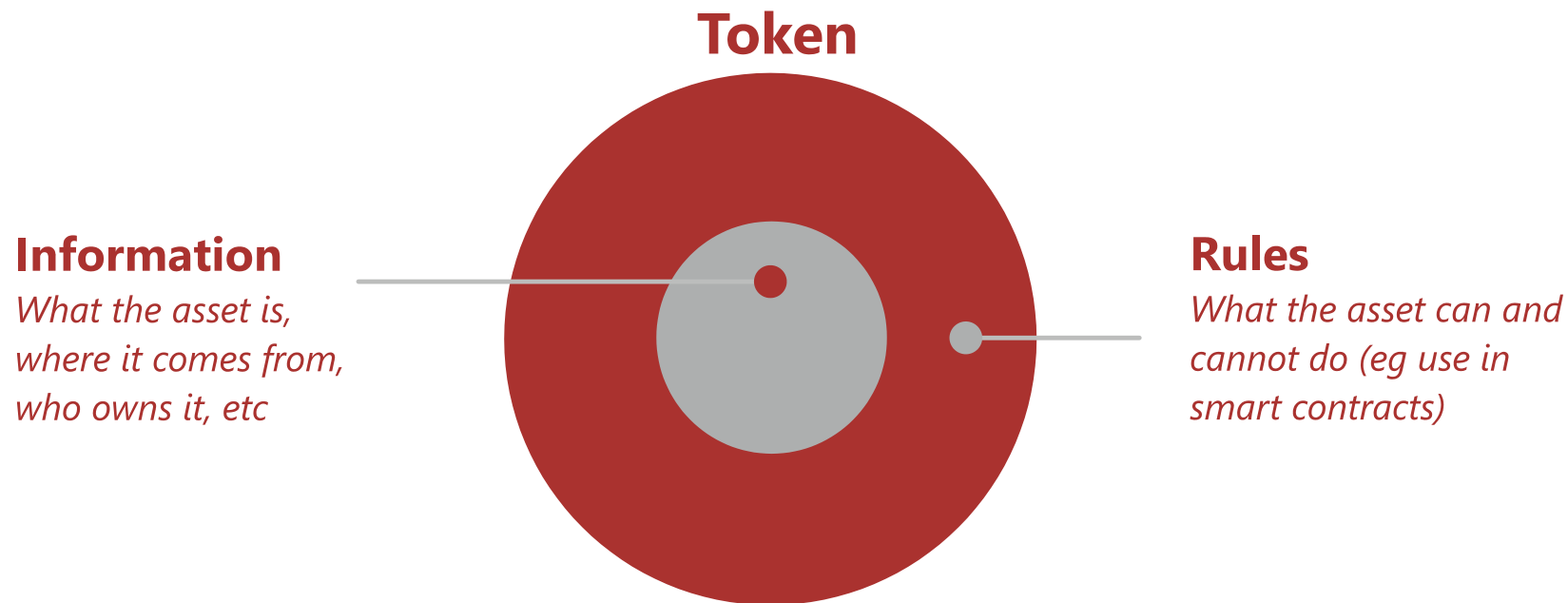
Following dematerialisation and digitalisation, what could be the next step in the evolution of the monetary and financial system?



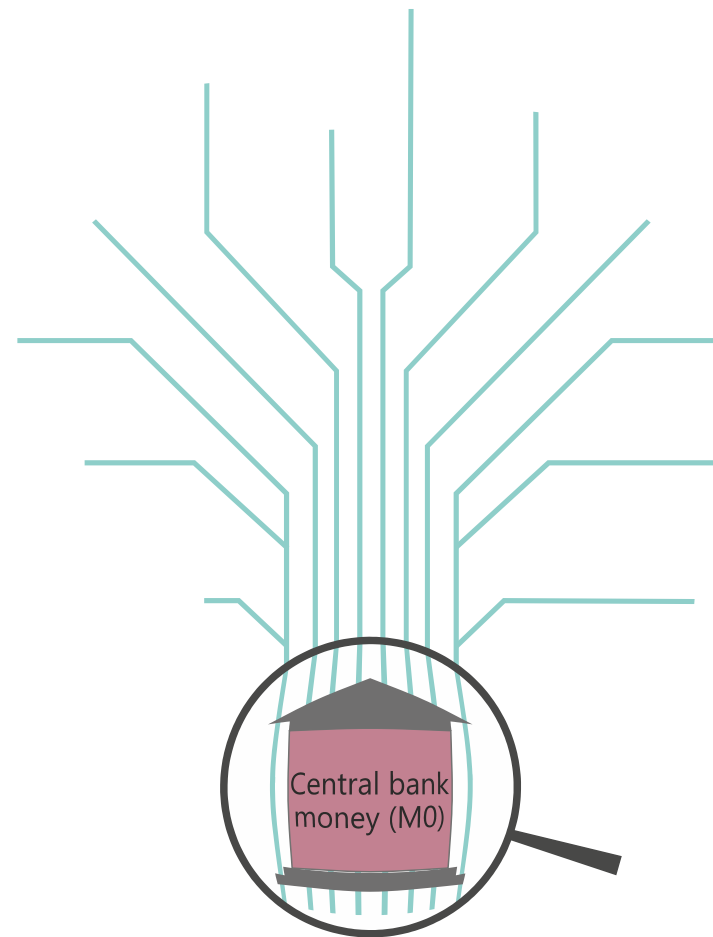
Tokenisation could be the next big development, unlocking new types of economic arrangements



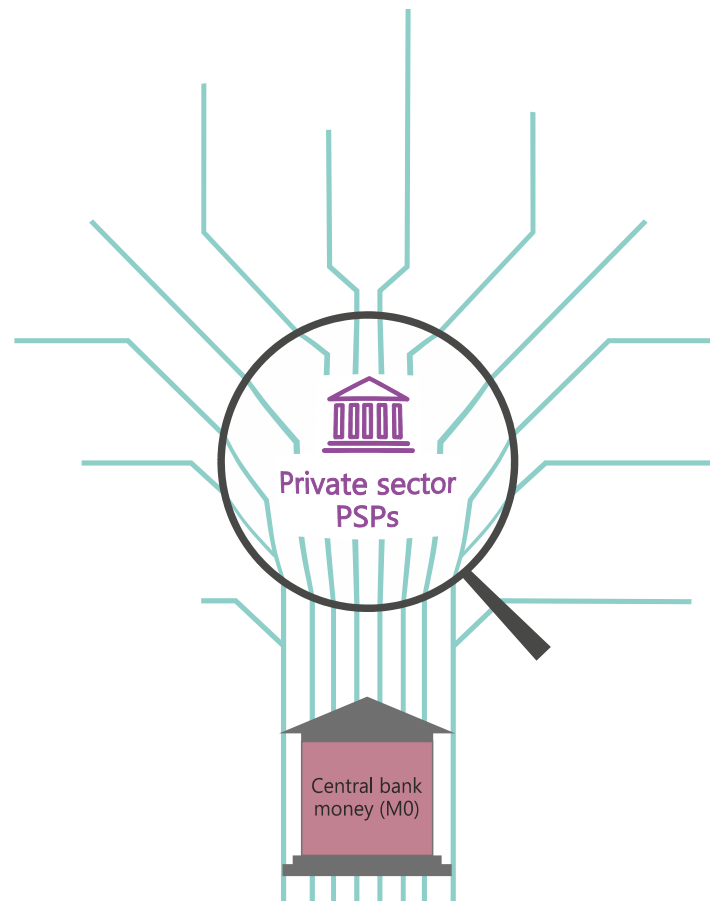
Tokens integrate records in a traditional database with the rules and logic governing the transfer process for that asset



The foundation: central bank money should remain at the core of the two-tier system

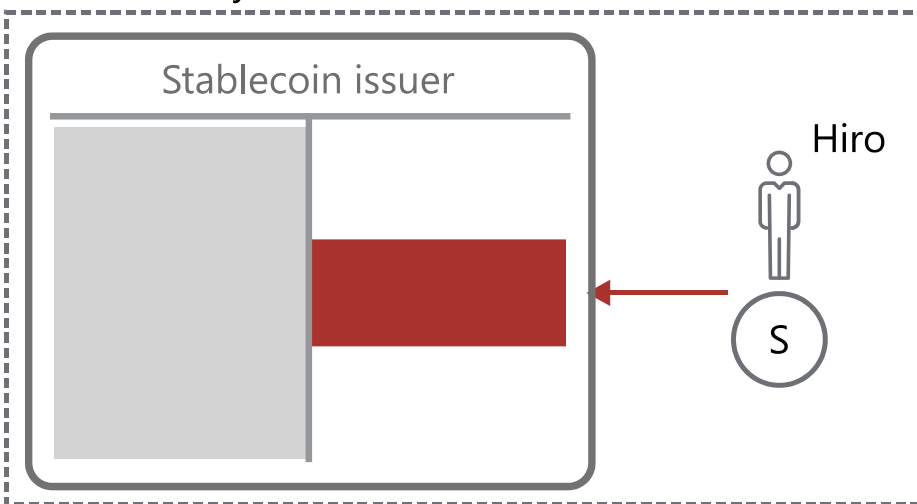


But what form should private tokenised money take?

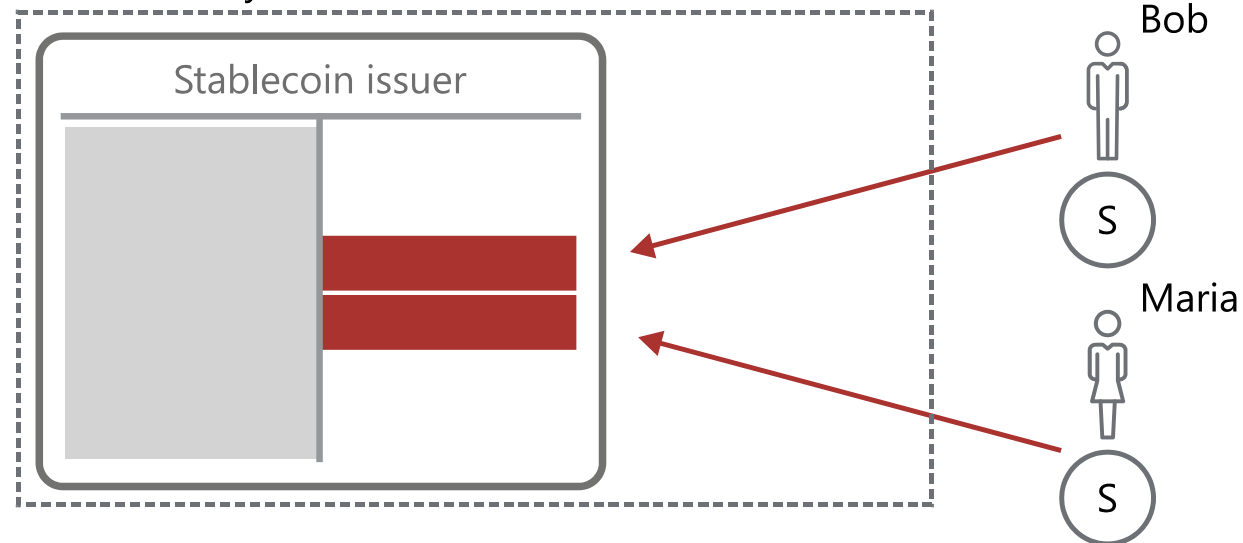


Stablecoins represent a transferable claim on the issuer, akin to a digital bearer instrument

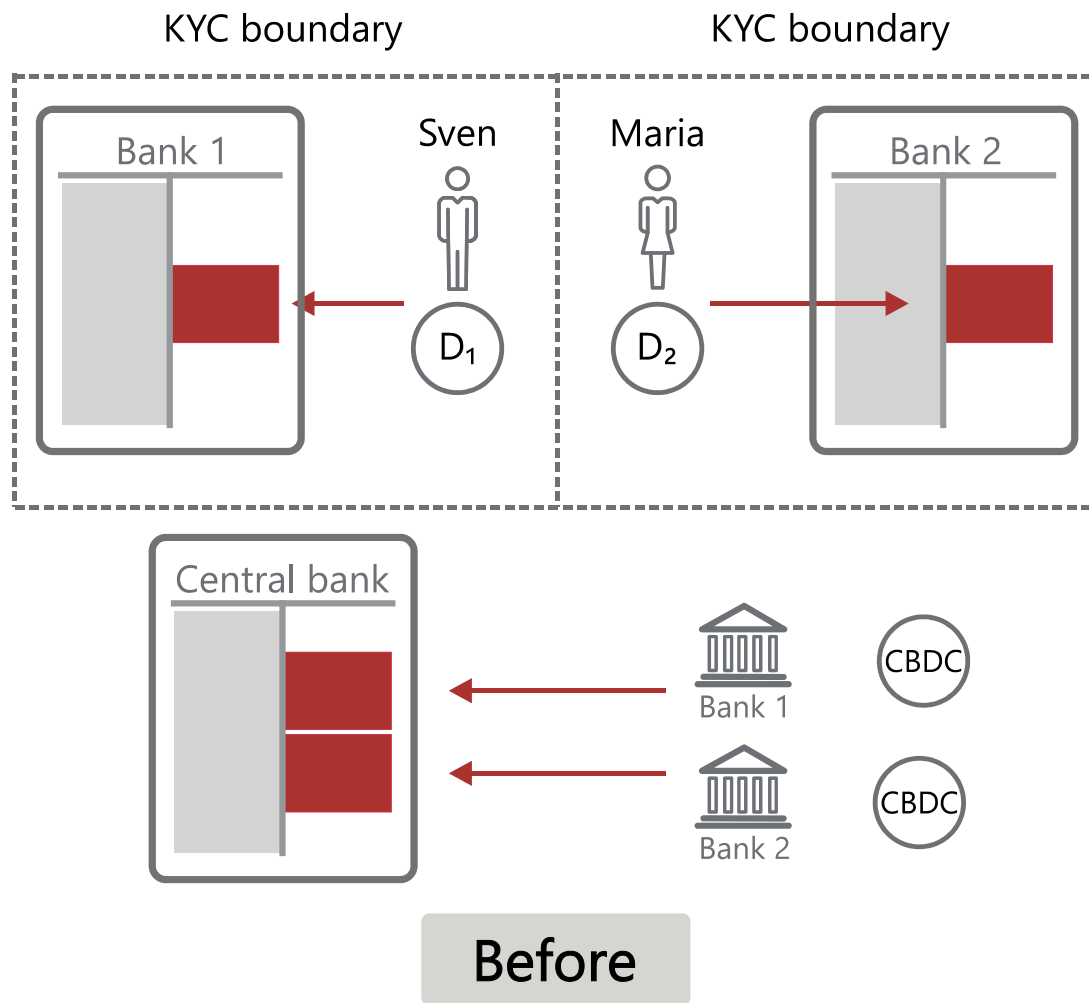
KYC boundary



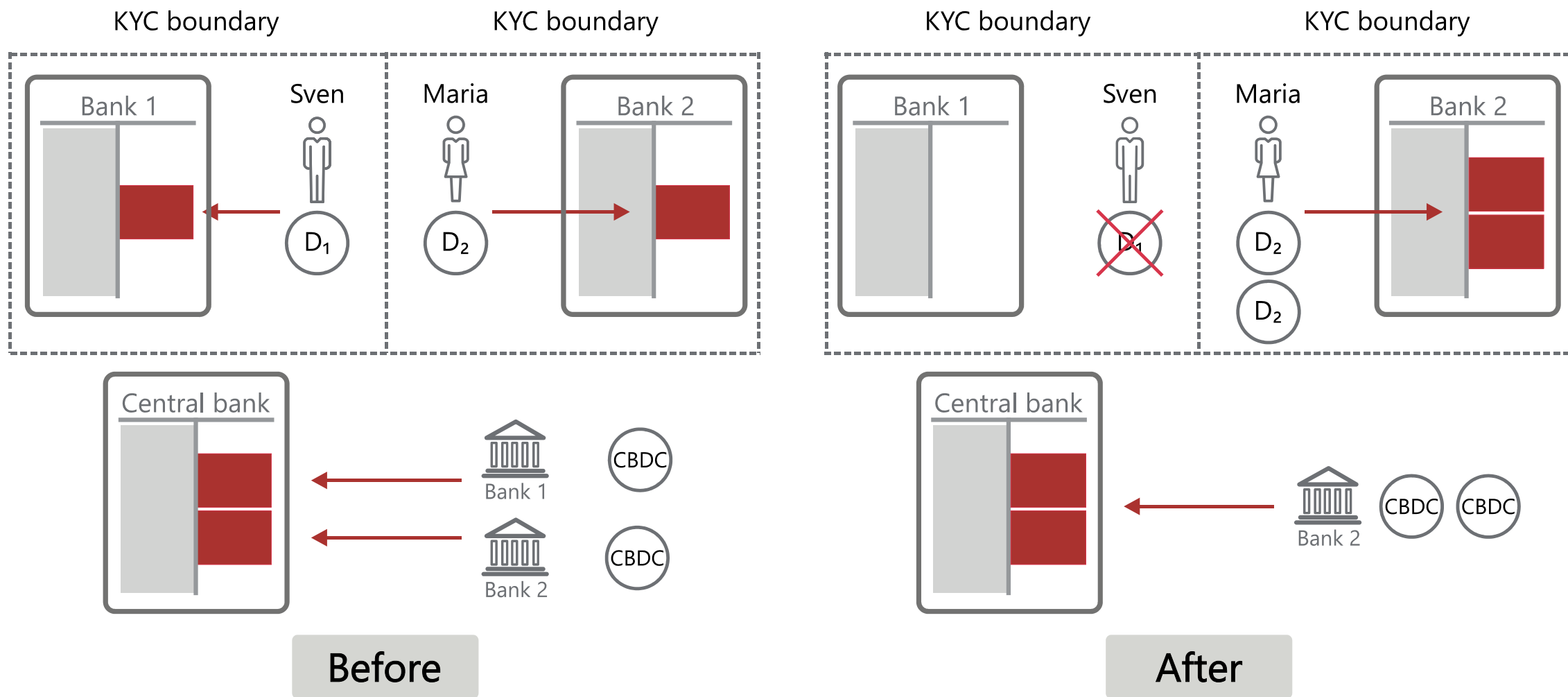
KYC boundary



Tokenised deposits are conducive to singleness, enhancing the key advantages of the two-tier monetary system



Payments are settled using central bank money, ensuring they all go through at par and preserving the singleness of money



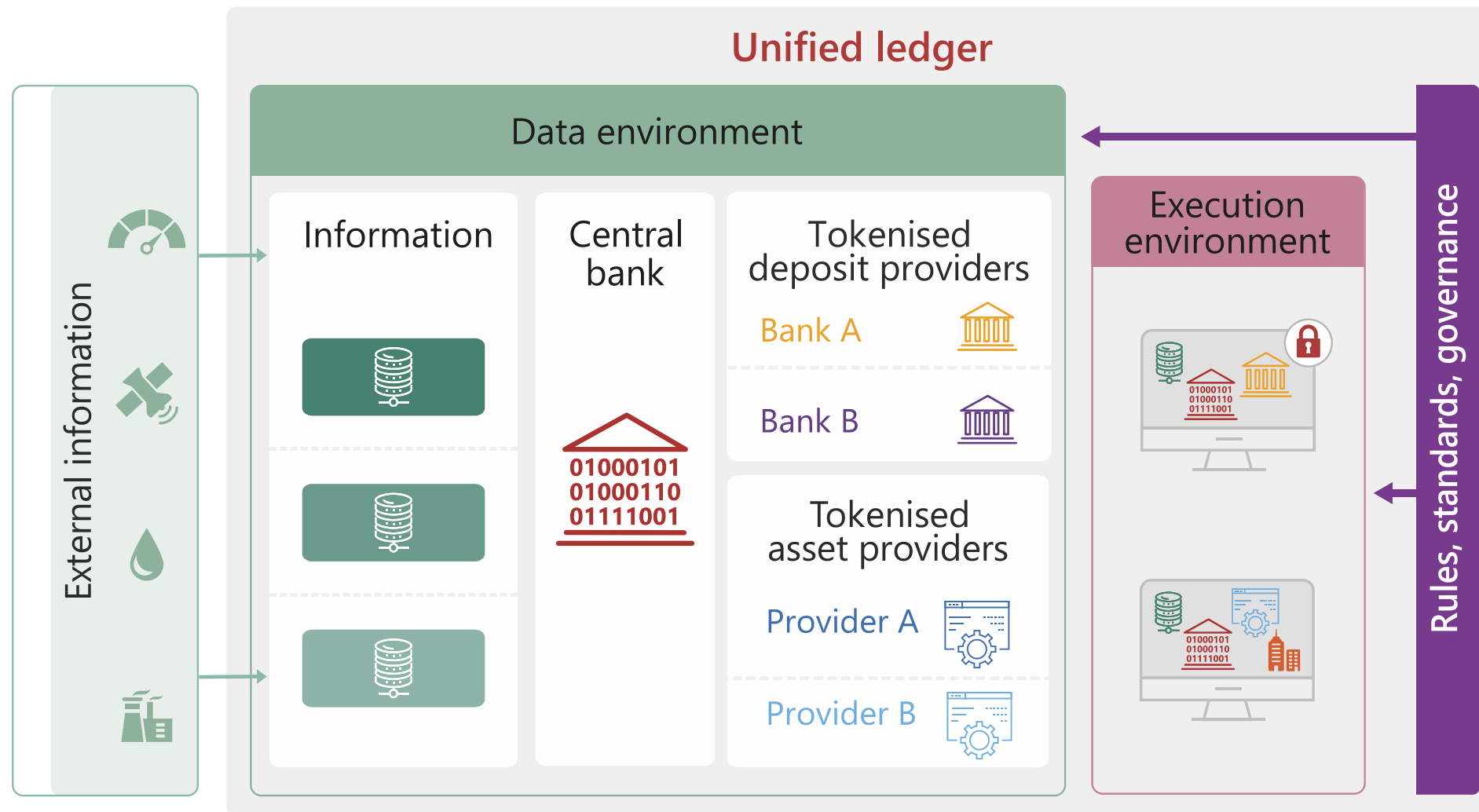
A more fundamental route is to bring together CBDCs, tokenised deposits and other tokenised assets on a shared programmable platform – a unified ledger



Central bank money resides in the same venue as other tokenised claims, giving firm foundation to the functionalities flowing from tokenisation

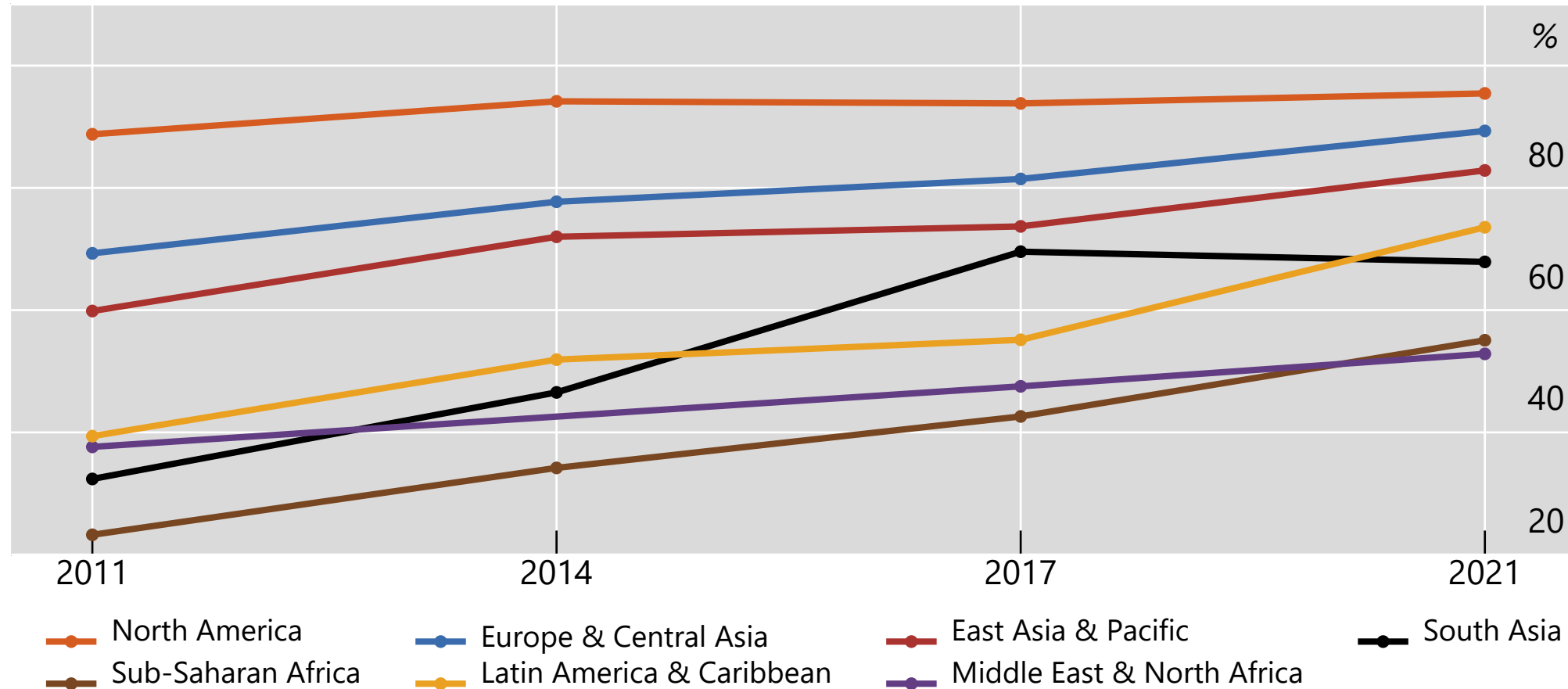


The unified ledger consists of a sound monetary unit of account, tokenised deposits, tokenised assets, a data environment and an execution environment



Even without more far-reaching initiatives, digital innovation can help to close gaps in access to payment services

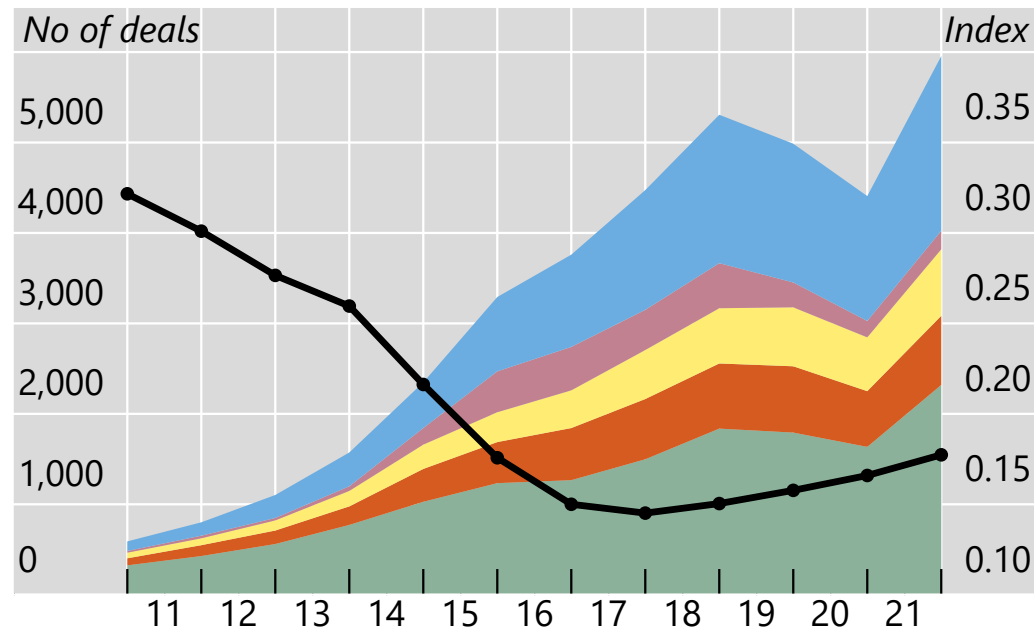
Percentage of adults with a transaction account



Source: World Bank Findex.

In the last years, investment in fintech has boomed

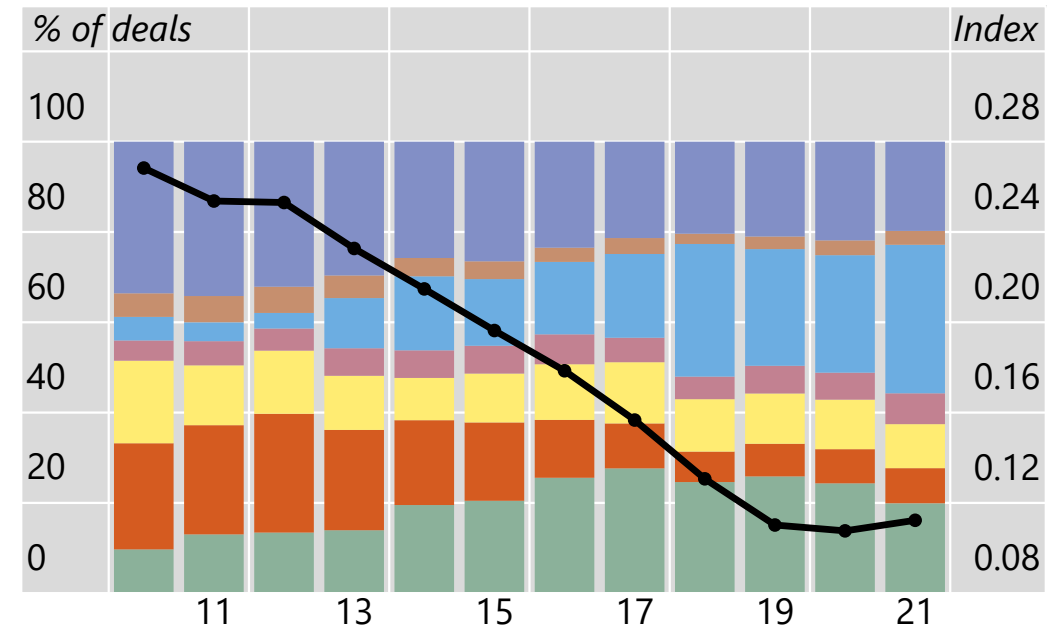
Investment in fintech grew globally...



Number of deals (lhs):

- United States
- EU
- United Kingdom
- China
- Rest of world
- Concentration, HHI (rhs)

...but at a different pace across sectors



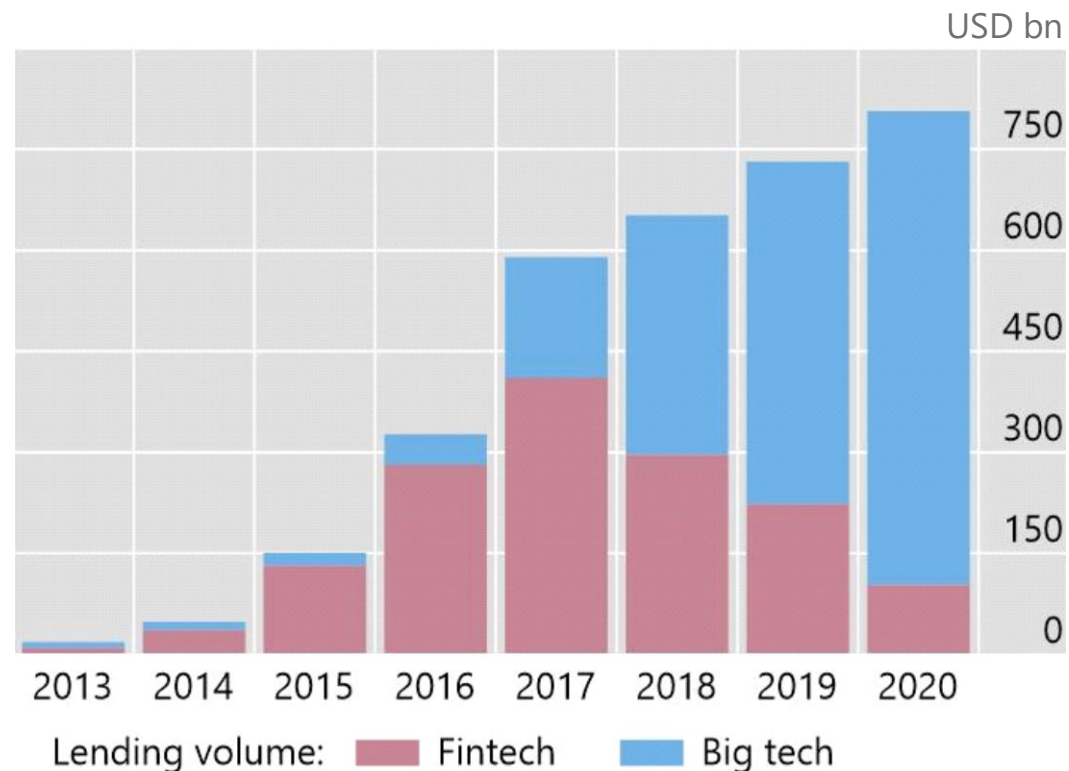
Share in the total number of deals (lhs):

- Big data, AI & machine learning
- E- and mobile-commerce
- Insurtech
- Cryptocurrency/blockchain
- B2B payments
- Real estate and mortgage tech
- Other
- Concentration, HHI (rhs)

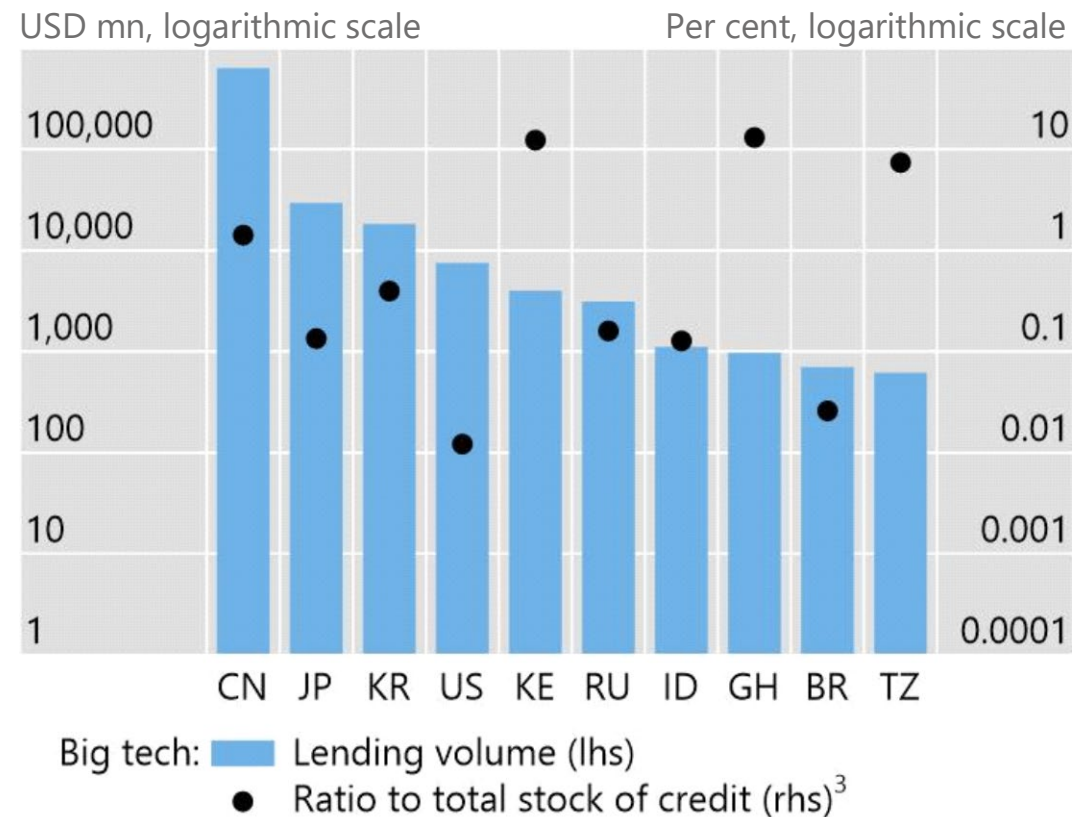
Source: Cornelli, Doerr, Franco and Frost (2021).

Fintech and big tech credit have grown rapidly

Big tech credit grew further during the pandemic¹



Big tech credit is economically large in some markets²

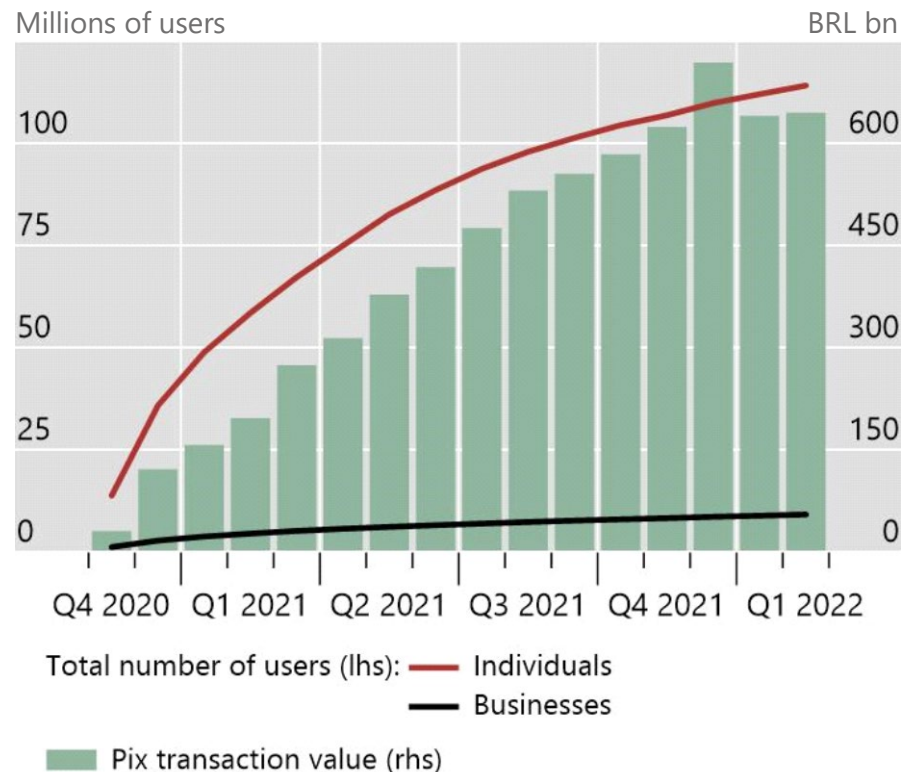


¹ Includes estimates. ² Data for 2020. ³ Domestic credit provided by the financial sector to the non-financial sector or closest alternative.

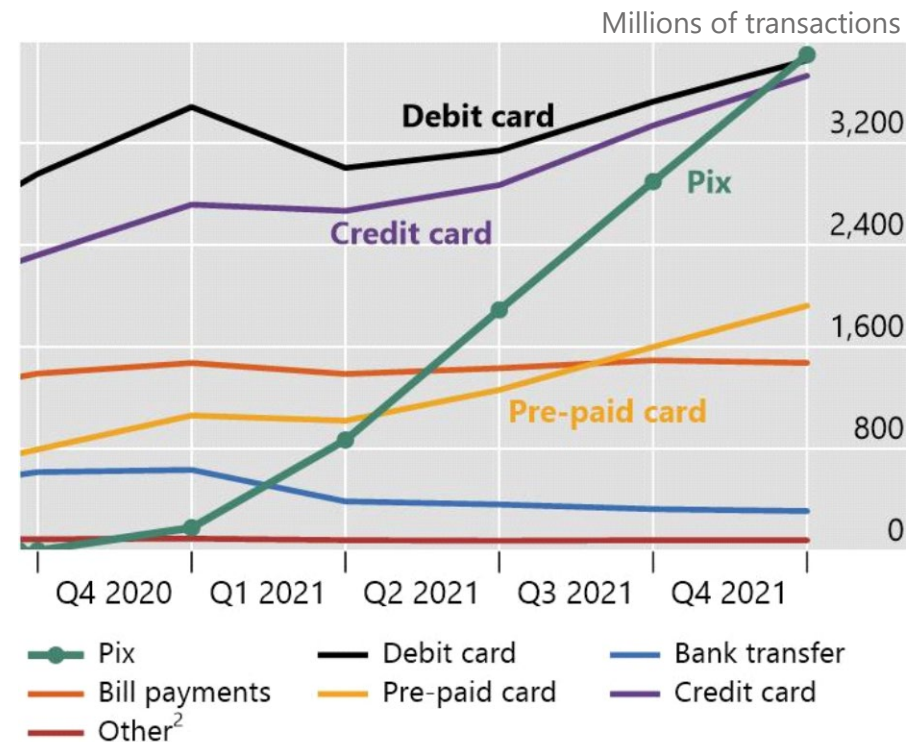
Source: Cornelli, Frost, Gambacorta, Rau, Wardrop and Ziegler (2023); updated estimates

Progress has been particularly rapid when supported by public infrastructures – such as retail fast payment systems, like Brazil's Pix

Users and transaction value have risen rapidly



Pix is gaining market share rapidly in a growing digital payments market¹



¹ Number of transactions for each payment instrument, excluding recurrent utility payments. ² Includes cheques.

Source: Central Bank of Brazil; Duarte et al (2022).

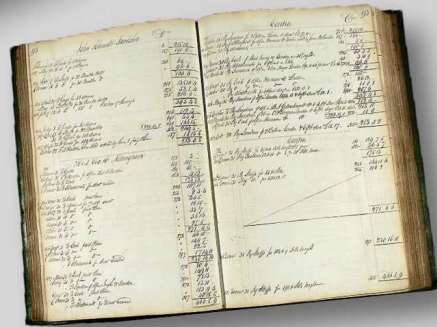
Central bank digital currencies (CBDCs) as a further digital public infrastructure

- Central bank digital currencies (CBDCs) are **a form of digital money, denominated in the national unit of account, which is a direct liability of the central bank**
- They come in two main flavours
 - **Retail** (general purpose) CBDC: accessible to households and businesses
 - **Wholesale** CBDC: accessible to financial institutions
- Like cash, CBDCs are central bank money, which is fundamentally different than private money such as bank deposits, e-money or cryptocurrencies



Concluding remarks

- The future monetary system must be built on a solid monetary unit of account, and sound payments
- Tokenisation and the unified ledger offer new types of economic arrangements that can form the next stage in the evolution of the monetary system
- Yet even before these initiatives, there is substantial promise in proven infrastructures such as retail fast payment systems and central bank digital currencies
- As the pace of change in monetary systems quickens, there is great value in international cooperation

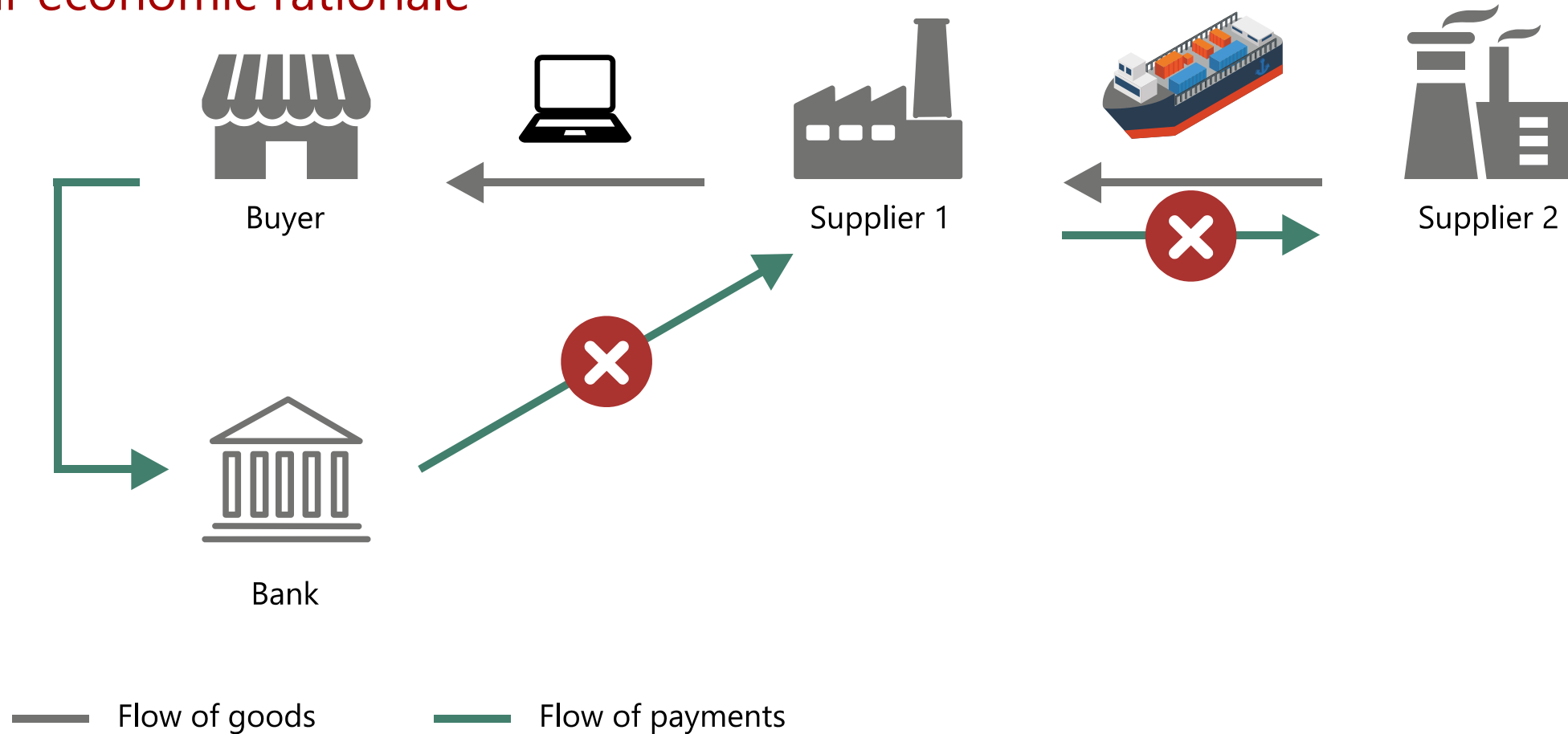


Incorporating contingent performance of actions has many potential applications, such as in supply chain financing

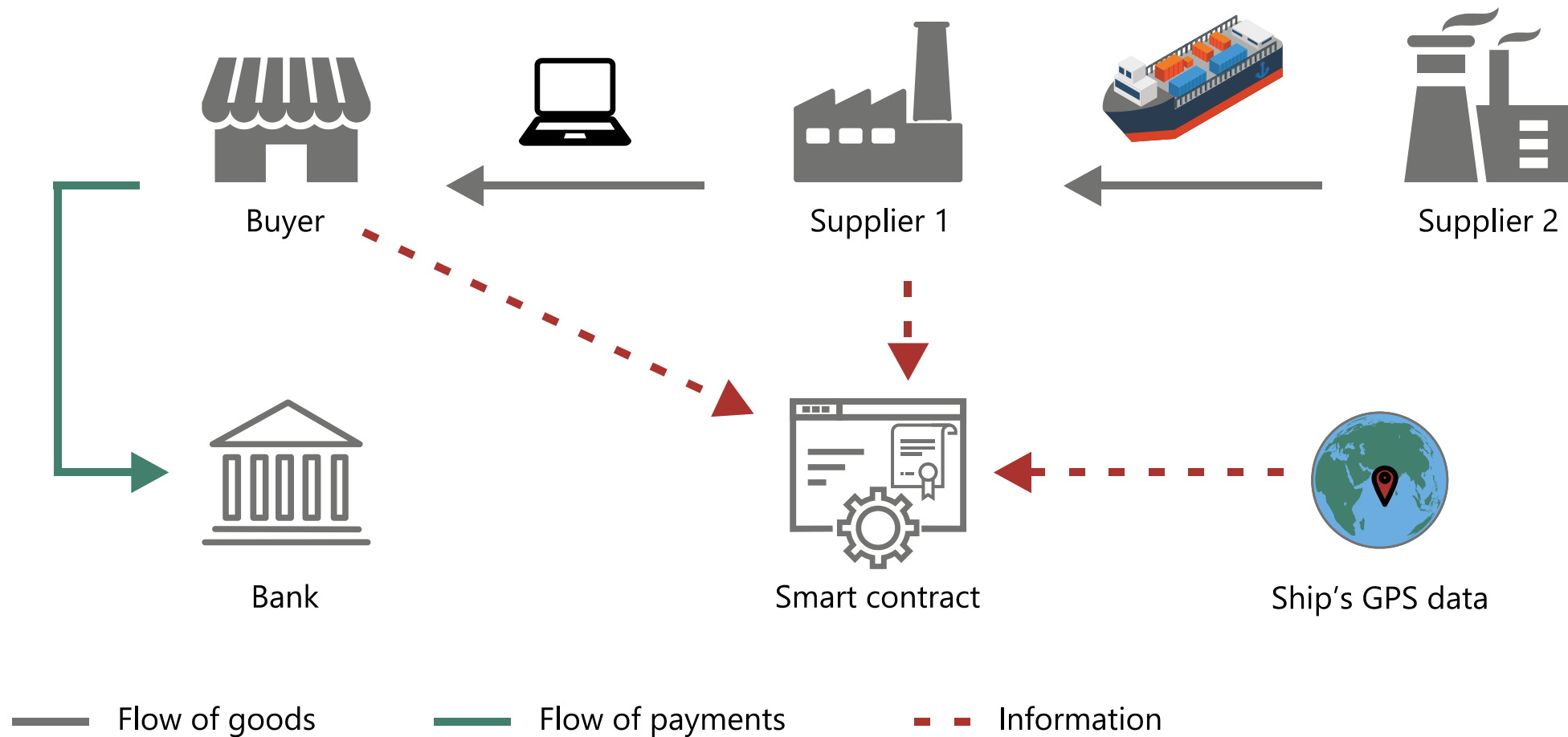


— Flow of goods

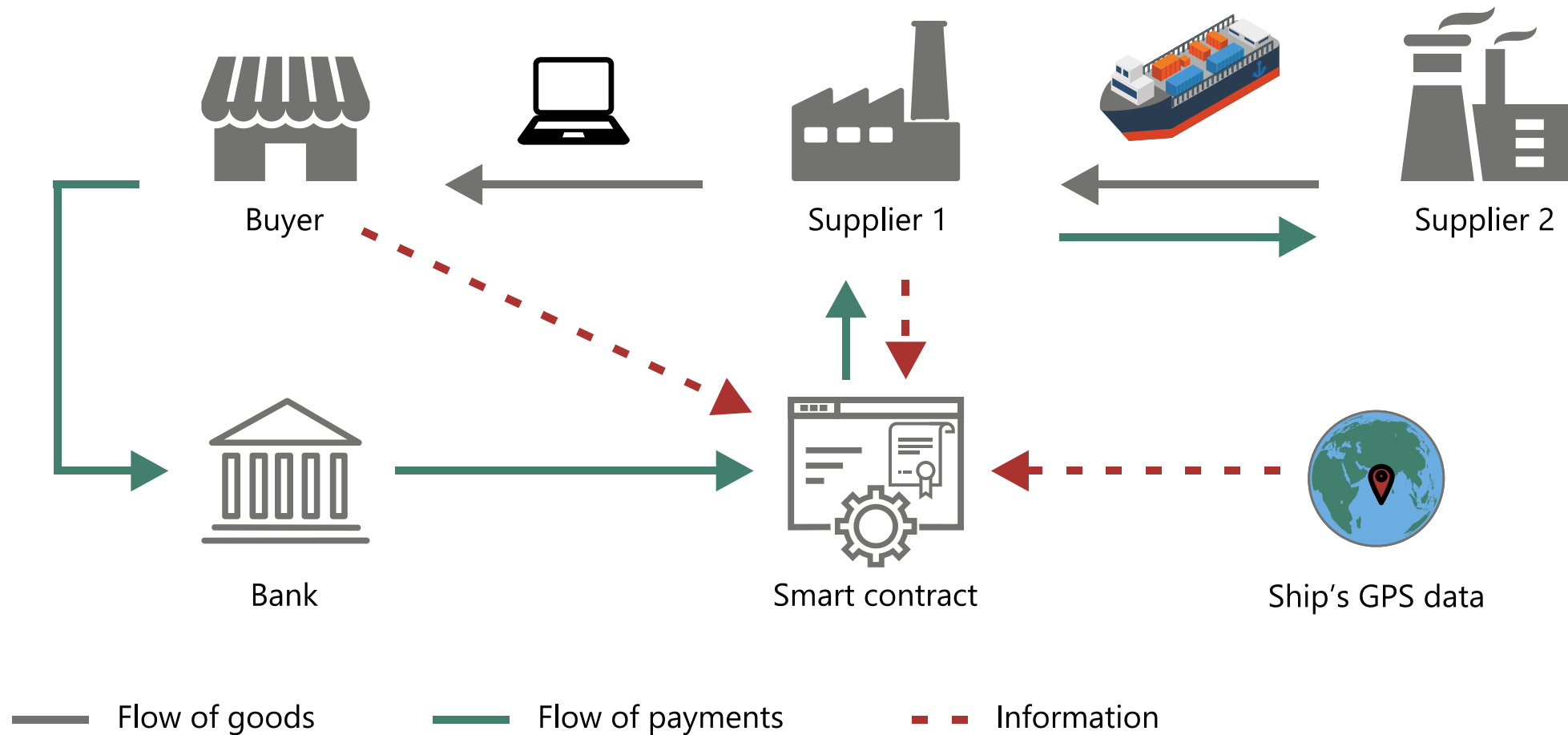
Supply chain financing has been a notoriously difficult one to solve due to information and incentive problems among many interested parties-
Information and incentive problems often preclude arrangements that have clear economic rationale



By incorporating contingent performance of actions, tokenisation could expand the universe of contractual outcomes



Contingencies that trigger contract provisions could include real-time external information as well as actions of other interested parties



Fintech and big tech credit: what are they?

Definition

Fintech

Technology-enabled innovation in financial services that could result in new business models, applications, processes or products ... ([FSB](#), 2017)

Fintech credit

Credit activity facilitated by electronic (online) platforms that are not operated by commercial banks, e.g. P2P / marketplace lending ([Claessens et al.](#), 2018)

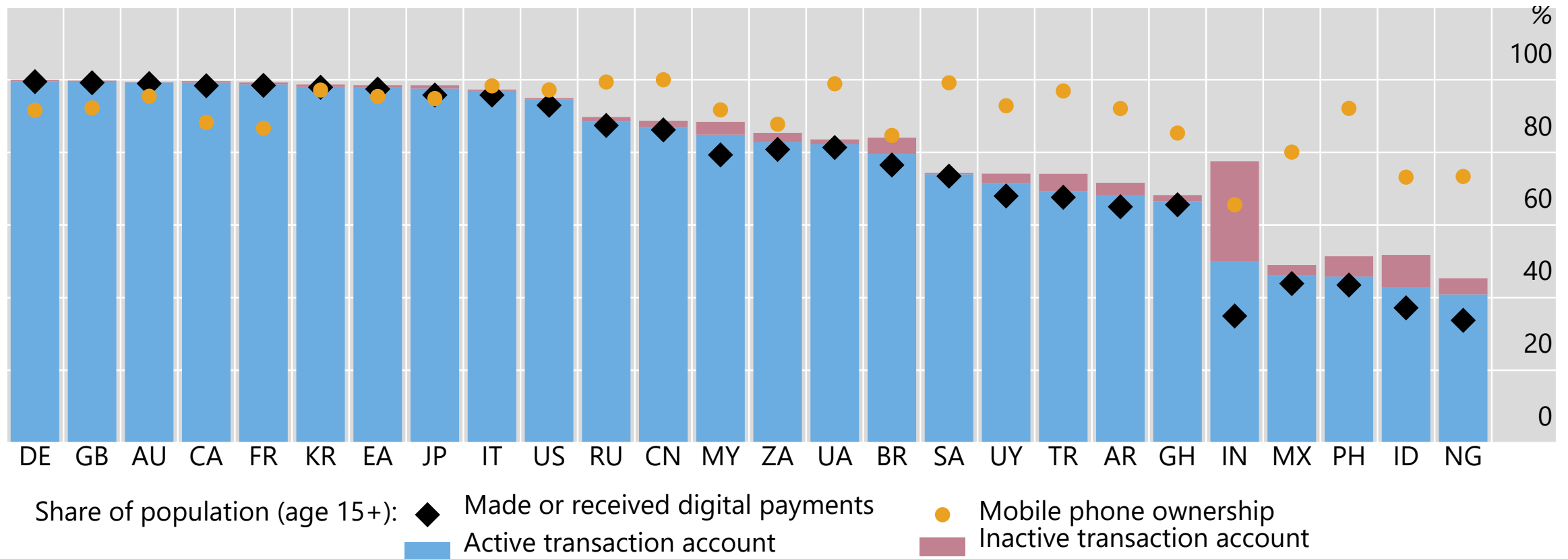
Big tech

Large companies whose primary activity is digital services, rather than financial services ([Frost et al.](#), 2019; [BIS](#), 2019)

Examples



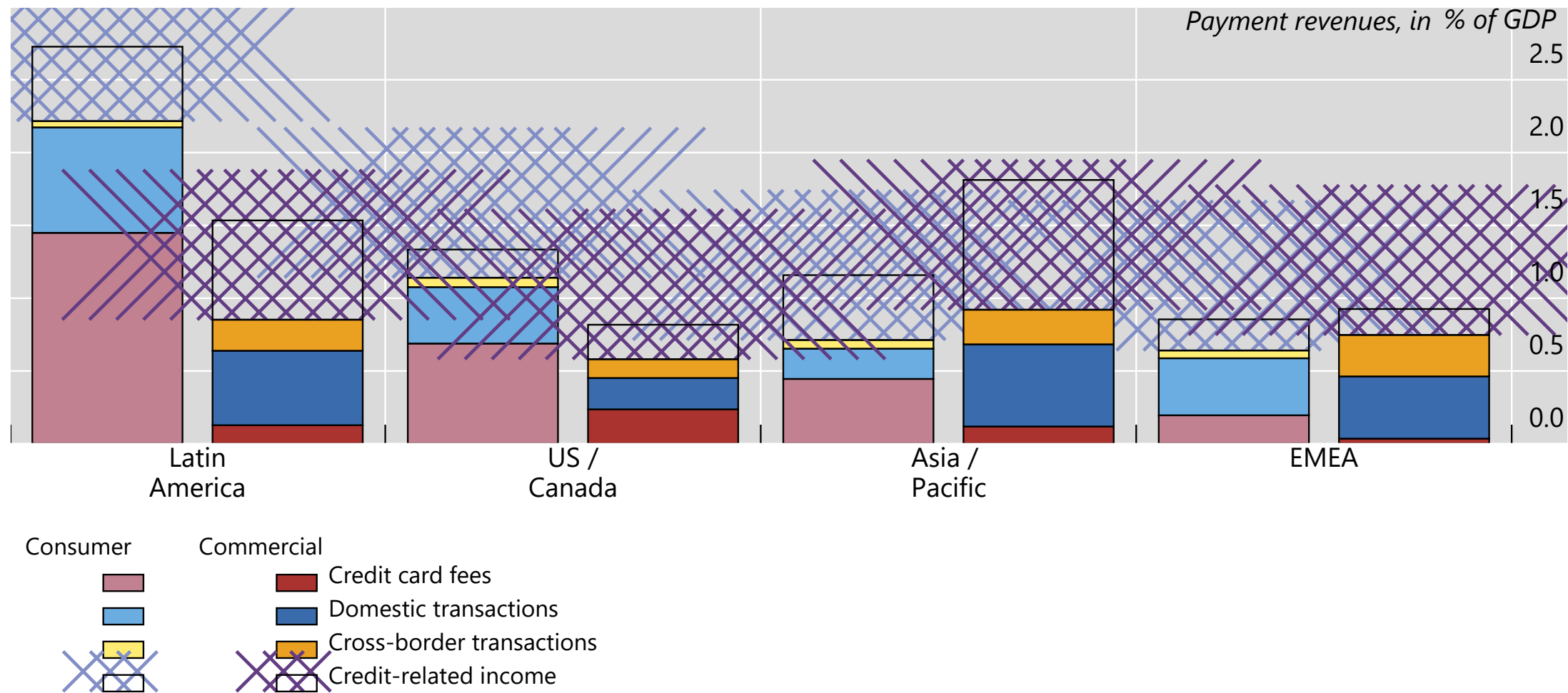
Today, there are gaps in access to financial services



For euro area (EA), simple average of the member countries. Data for 2021 (and 2022 for MX).

Source: World Bank Findex; Boakye-Adjei et al (2022).

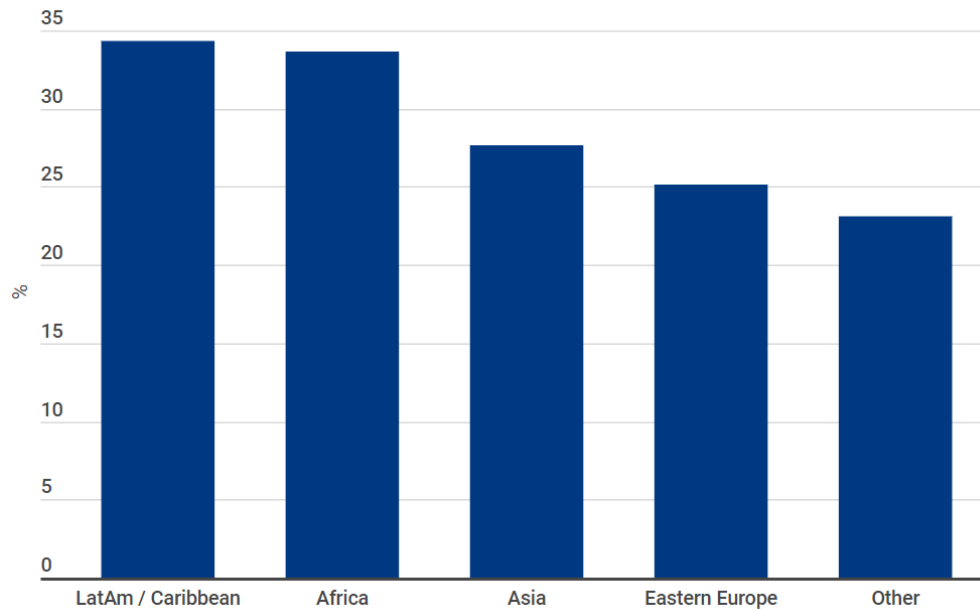
In some regions, financial services are also quite expensive



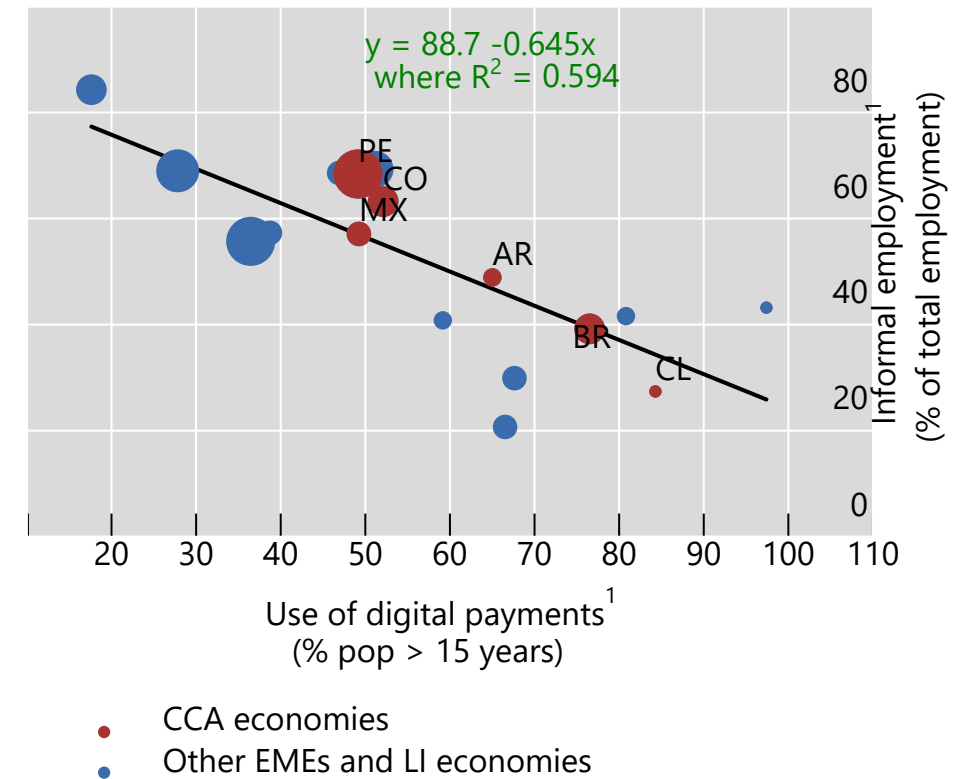
Source: McKinsey; Alfonso et al (2020).

The flipside of underdeveloped financial systems is a large informal economy

Estimated share of the informal ("shadow") economy



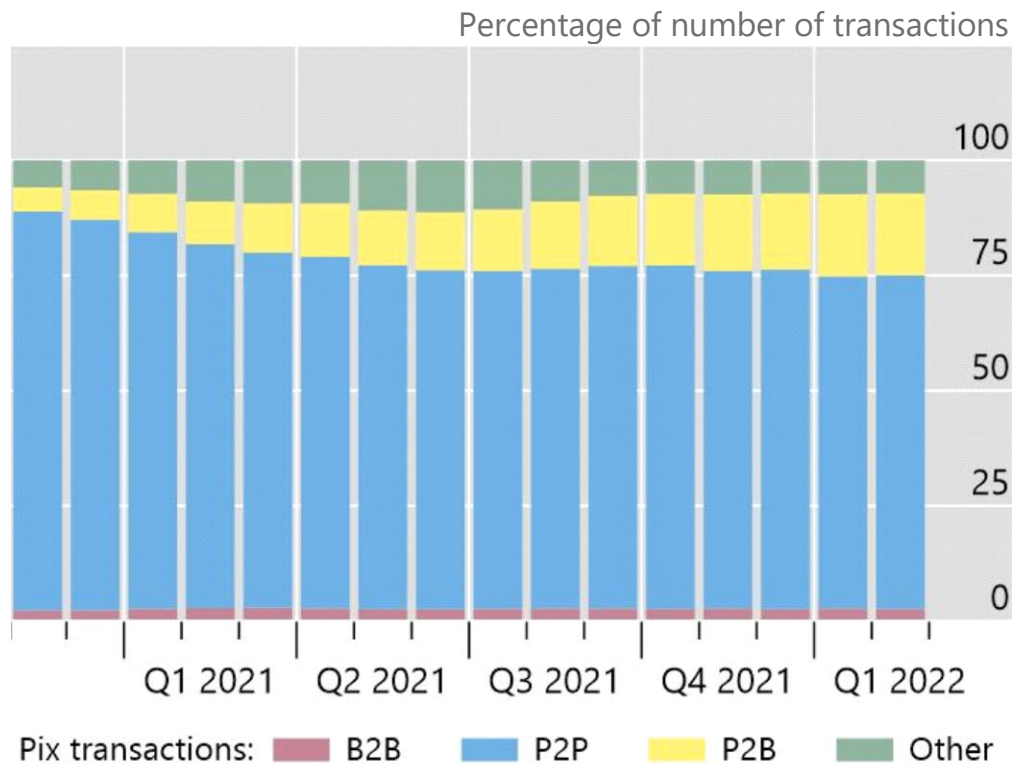
Informality vs use of digital payments



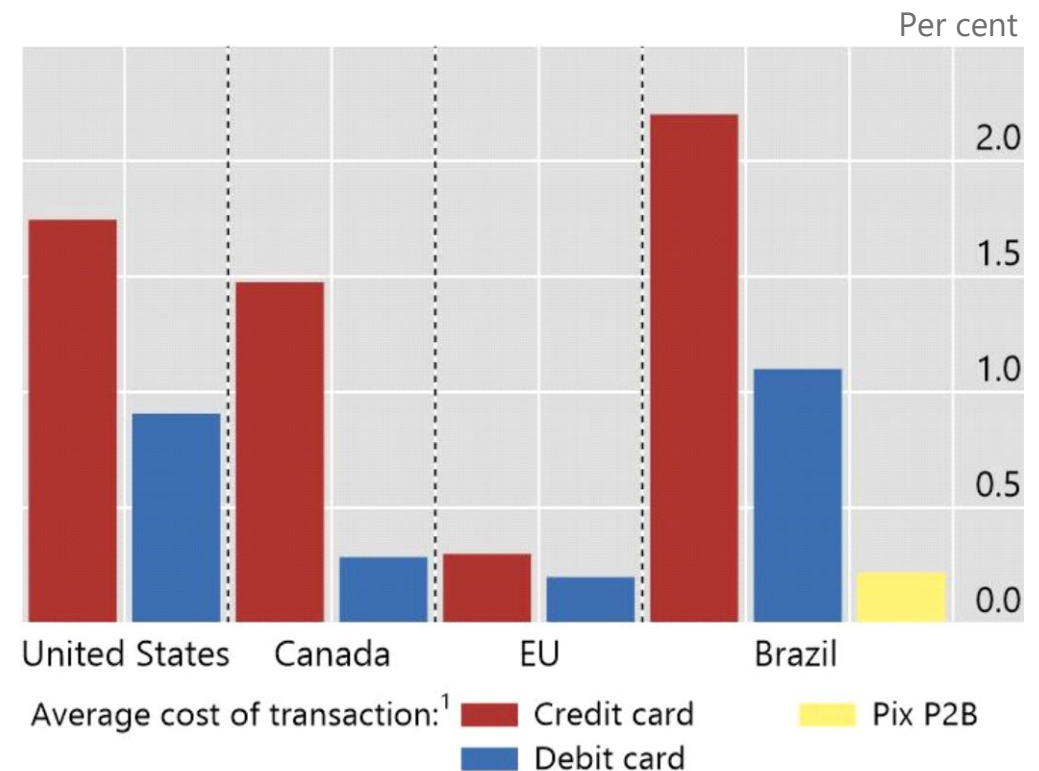
¹ The size of the bubble is proportional to the informal output (as % of official GDP). 2021 data for digital payments and Informal employment and, from 2018, data on informal output. Consultative Council for the Americas (CCA) economies are Argentina, Brazil, Canada, Chile, Colombia, Mexico, Peru and the United States. Source: Elgin et al (2021); Alfonso et al (2022); Medina and Schneider (2019); Auer, Cornelli and Frost (2023).

Pix is used increasingly for merchant payments, which are much cheaper

P2P payments still dominate, but P2B are growing



Average costs to merchants by payment method



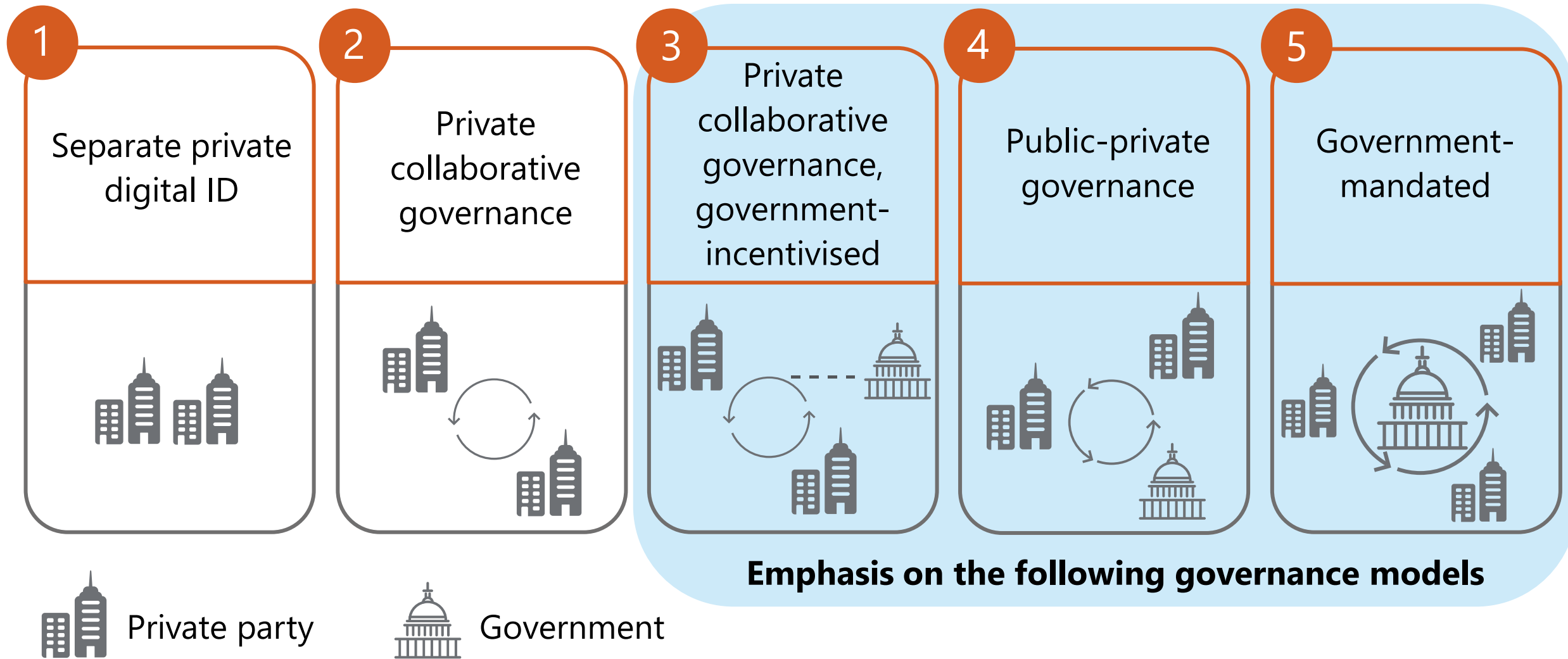
¹ For the United States, Canada and EU, average of interchange fees on credit and debit cards. Total cost to merchants may be higher.

Source: Duarte et al (2022).

Pix allows for low-cost, inclusive payments for merchants



Digital identity systems can also play an important foundational role



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